

**REMARKS**

The following remarks present a complete and timely response to the final Office Action mailed February 25, 2004 (Paper No. 11) and the Advisory Action mailed June 16, 2004 (Paper No. 13). Upon entry of the foregoing amendments, claims 3 and 30 have been canceled. Claims 1, 6, 9, 14, 18, and 27 have been amended. Accordingly, claims 1, 4 - 10, 12 - 21, 27 – 29, and 31 - 33 remain pending. Claims 2, 11, and 22-26 were canceled via previous amendments.

Applicants submit that the subject matter of amended claims 1, 6, 9, 14, 18, and 27 is supported in at least FIGs. 4, 6, and 7A – 7D and the related detailed description of Applicants' original specification. Thus, no new matter is added to the application.

Reconsideration and allowance of the application and presently pending claims are respectfully requested.

**I. Claim Rejections under 35 U.S.C. § 102 - Claims 1, 4, and 5**

**A. Statement of the Rejection**

Claims 1, 4, and 5 presently stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent 5,859,911 to Angelo *et al.*, hereafter *Angelo*.

**B. Discussion of the Rejection - Claims 1, 4, and 5**

A proper rejection of a claim under 35 U.S.C. § 102 requires that a single prior-art reference disclose each element, feature, or step of the claim. See *e.g.*, *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 7 USPQ2d 1129. (Fed. Cir. 1988.)

Applicants respectfully request that the Office reconsider the rejection in light of the amendments to independent claim 1. Applicants' independent claim 1 and dependent claims 4 and 5 that depend either directly or indirectly from claim 1 are allowable over *Angelo* for at least the reason that *Angelo* fails to disclose, teach, or suggest each element of the claimed computer system.

Applicants' claim 1 is exemplary. For convenience of analysis, Applicants' independent claim 1, as amended, is repeated on the following page in its entirety.

1. A computer system communicatively coupled to a network, comprising:

a programmable non-volatile memory;

at least one microprocessor operatively coupled to execute at least one instruction from the programmable non-volatile memory in response to a boot request, the microprocessor configured to controllably write to the programmable non-volatile memory; and

at least one fixed storage device operatively coupled to the at least one microprocessor, the fixed storage device containing a boot image that is configured with appropriate instruction code suited to transition the at least one microprocessor to an operational mode, wherein the at least one fixed storage device receives and stores a boot memory comprising:

a system loader;

a configuration file; and

a firmware patch configured to write a firmware upgrade to the programmable non-volatile memory, *the firmware patch comprising:*

*an install application;*

*a firmware revision containing at least one instruction different from firmware within the programmable non-volatile memory; and*

*a flash application having a bootable kernel, firmware update logic, and a non-volatile memory interface, wherein the system loader instructs the microprocessor to write the firmware revision to the programmable non-volatile memory.*

(Applicants' Claim 1 - *emphasis added.*)

Claim 1 recites a computer system that receives a boot memory comprising a system loader, a configuration file, and a firmware upgrade patch. The firmware upgrade patch comprises an install application, a firmware revision, and a flash application. The flash application includes a bootable kernel, firmware update logic, and a non-volatile memory interface.

For at least the reason that *Angelo* fails to disclose Applicants' claimed firmware patch, *Angelo* fails to anticipate Applicants' claim 1. Specifically, *Angelo* does not disclose, teach, or suggest a firmware patch that includes an install application, a firmware revision, and a flash application. Furthermore, *Angelo* does not disclose, teach,

or suggest a flash application having a bootable kernel, firmware update logic, and a non-volatile memory interface.

In this regard, *Angelo* appears to disclose a method for verifying the integrity of a remote BIOS flash transmitted from a source computer to a receiving computer. *Angelo* column 3, lines 31 – 33 indicates that the receiving computer is placed in a predetermined operating state such as by going through a cold boot power cycle. After a method for verifying the integrity of the received BIOS, the BIOS flash is carried out.

In contrast with *Angelo*, which apparently describes the receipt and validation of flash information, Applicants' claimed computer system receives a flash application that includes a bootable kernel, firmware upgrade logic, and a non-volatile memory interface. Accordingly, independent claim 1 is allowable over *Angelo*. Because independent claim 1 is allowable, pending dependent claims 4 and 5, which depend directly from claim 1, are also allowable for at least the reason that *Angelo* does not disclose, teach, or suggest Applicants' claimed flash application. See *In re Fine*, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598. (Fed. Cir. 1988.). Accordingly, Applicants respectfully request that the rejection of claims 1, 4, and 5 be withdrawn.

## **II. Claim Rejections under 35 U.S.C. § 103 - Claims 3, 6 - 10, 12 - 20, and 27 - 33**

### **A. Statement of the Rejection**

Claims 3, 6 - 10, 12 - 17, and 27 - 32 presently stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Angelo* in view of U.S. Patent 6,266,809 to Craig *et al.*, hereafter *Craig*. Claim 33 presently stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Angelo* in view of *Craig* in further view of U.S. Patent 6,324,692 to Fiske, hereafter *Fiske*. Claims 18 - 20 presently stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Craig* in view of *Angelo* in further view of *Fiske*.

### **B. Discussion of the Rejection - Claims 3, 6 - 10, 12 - 17, and 27 - 32**

In order for a claim to be properly rejected under 35 U.S.C. §103, the combined teachings of the prior art references must suggest all features of the claimed invention to one of ordinary skill in the art. See, e.g., *In Re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988), and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981).

Applicants have canceled claims 3 and 30. Thus, the rejection of claims 3 and 30 is rendered moot.

Applicants respectfully request that the Office reconsider the rejection of claims 6 – 10, 12 – 17, 27 – 29, and 31 – 33 in light of the amendments to independent claims 1, 9, 14, 18, and 27. Applicants' independent claims 1, 9, 14, 18, and 27 and dependent claims 6 – 10, 12 – 17, 27 – 29, and 31 – 33 that depend either directly or indirectly from the independent claims are allowable over the proposed combination of *Angelo* and *Craig* for at least the reason that the cited references fail to disclose, teach, or suggest each element of the claims.

Claim 1 is exemplary. As shown above, claim 1 includes a firmware patch that comprises an install application; a flash application having a bootable kernel, firmware update logic, and a non-volatile memory interface; and a firmware revision.

Both *Angelo* and *Craig* fail to disclose, teach, or suggest Applicants' claimed firmware patch, which includes an install application, a flash application, and a firmware revision. For at least this reason, claims 6 – 8 are allowable over the proposed combination of *Angelo* and *Craig*. Accordingly, Applicants respectfully request that the rejection of claims 6 – 8 be withdrawn.

For convenience of analysis, Applicants' independent claim 9, as amended, is repeated below in its entirety.

9. A computer network, comprising:

a plurality of computer systems communicatively coupled to a network infrastructure, each of the plurality of computer systems configured with a non-volatile memory containing a common firmware version designated for replacement and a fixed storage device containing a boot image having appropriate instruction code suited to transition the respective computer system to an operational mode;

a user input device communicatively coupled to at least one computer system communicatively coupled to the network infrastructure, the at least one computer system configured with write access permission for the respective fixed storage device associated with each of the plurality of computer systems, *wherein an input from the user input device initiates a transfer of a patch memory map and a firmware upgrade patch to the plurality of computer systems, the firmware upgrade patch comprising a bootable kernel different from an operating system operable on the respective computer system.*

(Applicants' Claim 9 - *emphasis added.*)

Claim 9 includes a user input device wherein an input from the user input device initiates a transfer of a patch memory map and a firmware upgrade patch, the firmware upgrade patch comprising a bootable kernel different from an operating system operable on the respective computer system.

Both *Angelo* and *Craig* fail to disclose, teach, or suggest Applicants' claimed user input device which initiates a transfer of a patch memory map and a firmware upgrade patch, which includes a bootable kernel different from an operating system operable on the respective computer system. For at least this reason, claims 9, 10, 12, and 13 are allowable over the proposed combination of *Angelo* and *Craig*. Accordingly, Applicants respectfully request that the rejection of claims 9, 10, 12, and 13 be withdrawn.

For convenience of analysis, Applicants' independent claim 14, as amended, is repeated below in its entirety.

14. A computer system communicatively coupled to a network, comprising:

means for accessing data stored on a memory device that retains data when power is removed from the memory device, the accessing means responsive to power being applied to the computer system; and

***means for writing to the memory device*** in response to a remote input designated to initiate the replacement of the data stored on the memory device, ***wherein the new data to be stored and a bootable kernel are stored on a fixed storage device*** within the computer system in response to the remote input, ***the bootable kernel comprising a system loader interface and reboot logic.***

(Applicants' Claim 14 - *emphasis added.*)

Claim 14 is directed to a computer system that comprises a means for writing to a memory device. New data to be stored and a bootable kernel are stored on a fixed storage device. The bootable kernel comprises a system loader interface and reboot logic.

Both *Angelo* and *Craig* fail to disclose, teach, or suggest Applicants' claimed computer system. Specifically, *Angelo* and *Craig* fail to disclose, teach, or suggest that new data to be stored and a bootable kernel are stored on a fixed storage device. In

addition, *Angelo* and *Craig* fail to disclose, teach, or suggest a bootable kernel that comprises a system loader interface and reboot logic. For at least these reasons, claims 14 - 17 are allowable over the proposed combination of *Angelo* and *Craig*. Accordingly, Applicants respectfully request that the rejection of claims 14 – 17 be withdrawn.

For convenience of analysis, Applicants' independent claim 27, as amended, is repeated below in its entirety.

27. A computer system communicatively coupled to a network, comprising:

- a programmable non-volatile memory having a first firmware;
- at least one microprocessor operatively coupled to controllably write to the programmable non-volatile memory and execute at least one instruction from the programmable non-volatile memory in response to a boot request; and
- at least one fixed storage device operatively coupled to the at least one microprocessor, the storage device containing a firmware patch comprising:
  - a patch memory map comprising an index that identifies the location of: an install application;
  - a second firmware different from the first firmware; and
  - a flash application comprising:
    - a bootable kernel including a system loader interface and reboot logic;
    - a firmware update logic; and
    - a non-volatile memory interface,

***wherein the flash application instructs a system loader via the system loader interface to select the bootable kernel upon receipt of a boot request.***

(Applicants' Claim 27 - *emphasis added.*)

Claim 27 is directed to a computer system coupled to a network that receives a flash application that comprises a bootable kernel, firmware update logic, and a non-volatile memory interface. The received flash application instructs a system loader via the system loader interface to select the bootable kernel upon receipt of a boot request.

Both *Angelo* and *Craig* fail to disclose, teach, or suggest Applicants' claimed computer system. Specifically, *Angelo* and *Craig* fail to disclose, teach, or suggest a flash application that comprises a bootable kernel, firmware update logic, and a non-volatile memory interface. In addition, *Angelo* and *Craig* fail to disclose, teach, or

suggest that the received flash application instructs a system loader via the system loader interface to select the bootable kernel upon receipt of a boot request. For at least these reasons, claims 27 – 29, 31 and 32 are allowable over the proposed combination of *Angelo* and *Craig*. Accordingly, Applicants respectfully request that the rejection of claims 27 – 29, 31, and 32 be withdrawn.

For convenience of analysis, Applicants' independent claim 18, as amended, is repeated below in its entirety.

18. A method for performing a firmware upgrade, comprising:

*delivering a firmware install patch containing firmware, an install application, and a flash application to a boot disk within a plurality of networked computer systems each of said computer systems having a firmware version designated for the firmware upgrade, wherein the flash application comprises a bootable kernel, firmware update logic, and a non-volatile memory interface;*

initiating an install application contained within the firmware install patch, said install application containing instructions suited to perform the firmware upgrade;

modifying an initial system loader in response to the install application to direct a microprocessor to execute instructions from the boot image upon a subsequent microprocessor reset input;

initiating a microprocessor reset input in response to the install application that loads a plurality of instructions in accordance with the boot image;

erasing the firmware within each of the plurality of networked computer systems in response to the install application; and

writing the new firmware to each of the plurality of networked computer systems in response to the install application.

(Applicants' Claim 18 - *emphasis added*.)

Claim 18 is directed to a method for performing a firmware upgrade. The method comprises delivering a firmware install patch containing firmware, an install application, and a flash application to a boot disk within a plurality of networked computer systems each of said computer systems having a firmware version designated for the firmware upgrade, wherein the flash application comprises a bootable kernel, firmware update logic, and a non-volatile memory interface.

*Angelo, Craig, and Fiske* fail to disclose, teach, or suggest Applicants' claimed method. Specifically, *Angelo, Craig, and Fiske* fail to disclose, teach, or suggest delivering a firmware install patch containing firmware, an install application, and a flash application to a boot disk within a plurality of networked computer systems each of said computer systems having a firmware version designated for the firmware upgrade, wherein the flash application comprises a bootable kernel, firmware update logic, and a non-volatile memory interface. For at least this reason, claims 18 - 20 are allowable over the proposed combination of *Angelo, Craig, and Fiske*. Accordingly, Applicants respectfully request that the rejection of claims 18 - 20 be withdrawn.

As shown above, claim 27 is directed to a computer system coupled to a network that receives a flash application that comprises a bootable kernel, firmware update logic, and a non-volatile memory interface. The received flash application instructs a system loader via the system loader interface to select the bootable kernel upon receipt of a boot request. Dependent claim 33, which depends from independent claim 27, adds the limitation "wherein the file system operation results in the removal of the firmware patch from the at least one fixed storage device."

*Angelo, Craig, and Fiske* fail to disclose, teach, or suggest Applicants' claimed computer system. Specifically, *Angelo, Craig, and Fiske* fail to disclose, teach, or suggest a flash application that comprises a bootable kernel, firmware update logic, and a non-volatile memory interface. Furthermore, *Angelo, Craig, and Fiske* fail to disclose, teach, or suggest a received flash application instructs a system loader via the system loader interface to select the bootable kernel upon receipt of a boot request. Moreover, *Angelo, Craig, and Fiske* fail to disclose, teach, or suggest a file system operation results in the removal of the firmware patch from the at least one fixed storage device. Consequently, for at least these reasons, claim 33 is allowable over the proposed combination of *Angelo, Craig, and Fiske*. Accordingly, Applicants respectfully request that the rejection of claim 33 be withdrawn.

Combinations Citing The Craig Reference Are Improper

Applicants traverse the rejection of claims 6 - 10, 12 - 17, 27 – 29, and 31 - 33 for at least the reason that the proposed combinations in view of the teachings of *Craig* are improper.

The Office's rebuttal to Applicants' argument for the patentability of Applicants' rejected claims over proposed combinations of *Angelo* in view of *Craig* and *Craig* in view of *Angelo* reflects a fundamental flaw in the application of a proper rejection under 35 U.S.C. § 103. In this regard, the Office alleges that *Craig* does not teach away from Applicants' claimed invention because *Craig* does not expressly exclude a fixed disk from being present, nor state that the techniques employed by *Craig* for updating firmware in a diskless networked computer will specifically not work if a fixed disk is included in the system. Applicants disagree.

The Office further alleges that because the system of *Craig* would still be capable of operating as a network computer, which receives operating software and applications via a network, if a fixed disk was added to the system that *Craig* is a valid reference under 35 U.S.C. § 103. Applicants disagree.

It is well-established law that a reference should be considered as a whole, and portions arguing against or teaching away from the claimed invention must be considered. *Bausch & Lomb, Inc. v. Barnes Hind/Hydrocurve, Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986). See MPEP § 2141.02 which states, “A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. ‘‘A *prima facie* case of obviousness can be rebutted if the applicant ... can show ‘that the art in any material respect taught away’ from the claimed invention.’ *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997) (quoting *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ2d 549, 553 (CCPA 1974)). ‘A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path taken by the applicant.’ *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999).” Thus, *Craig* cannot be said to not teach away from an Applicant's invention simply because *Craig* did not include an express exclusion of a fixed drive.

Applicants respectfully submit that *Craig* teaches away from Applicants' claim 1, which recites at least one fixed storage device operatively coupled to the at least one microprocessor, wherein the at least one fixed storage device receives and stores a boot memory. *Craig* apparently describes a system and method for updating firmware in a network computer. A network computer, as defined in *Craig*, is a “diskless computer” because it does not include persistent storage such as a floppy disk, hard disk, or CD-

ROM. A network computer, as described in *Craig*, contains a limited amount of volatile storage to temporarily store applications and data while the network computer is running. This volatile storage loses its information when the network computer is turned off. *Craig* describes that a limited amount of non-volatile storage may be provided to store a security key and a URL to identify the server with which the network computer works. (See *Craig*, column 2, lines 3-24.) Consequently, one skilled in the art, upon reading *Craig*, would be led away from Applicants' claimed system, which includes "a fixed storage device to receive and store a boot memory."

Moreover, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). See MPEP § 2143.01. The modification or combination of *Craig*, which apparently discloses a method for the secure remote flashing of the BIOS of a diskless computer by adding a fixed disk with a boot memory, would necessarily change the principle of operation of the prior art invention disclosed in *Craig*. The prior art invention disclosed in *Craig* includes a network computer without a fixed storage device. The test is not whether the computer system of *Craig* could still operate as a network computer. The proper test is whether the proposed combination would change the principle of secure remote flashing of the BIOS of a diskless computer as disclosed in *Craig*. The addition of a fixed disk directly contradicts the secure remote flashing of the BIOS of a diskless computer. Consequently, the teachings of *Craig* cannot be used in combination with the teachings of *Angelo* to render Applicants' claimed invention *prima facie* obvious.

Applicants' independent claim 9 recites "a fixed storage device containing a boot image having appropriate instruction code suited to transition the respective workstation to an operational mode." Consequently, *Craig* teaches away from Applicants' claim 9 because *Craig* teaches away from the claimed fixed storage device.

Applicants' independent claim 14 recites "new data to be stored and a bootable kernel are stored on a fixed memory device within the workstation in response to the remote input." Consequently, *Craig* teaches away from Applicants' claim 14 because *Craig* teaches away from the claimed fixed memory device within the workstation.

Applicants' independent claim 18 recites "delivering a firmware install patch containing a boot image to a boot disk within a plurality of networked workstations."

Consequently, *Craig* teaches away from Applicants' claim 18 because *Craig* teaches away from the claimed "delivering to a boot disk . . . within a plurality of workstations."

Applicants' independent claim 27 recites "at least one fixed storage device operatively coupled to the at least one microprocessor, the storage device containing a firmware patch comprising: a patch memory map comprising an index that identifies the location of: an install application; a second firmware different from the first firmware; and a flash application comprising: a bootable kernel including a system loader interface and reboot logic; a firmware update logic; and a non-volatile memory interface."

Consequently, *Craig* teaches away from Applicants' claim 27 because *Craig* teaches away from the claimed "at least one fixed storage device."

The mere fact that a reference teaches away from the combination with another reference is sufficient to defeat an obviousness claim. See *Gambro Lundia AB*, 110 F.3d at 1579, 42 USPQ2d at 1383. Therefore, Applicants respectfully submit that the Office Action has failed to establish a proper motivation or suggestion to combine the teachings of *Angelo* in view of the teachings of *Craig* such as to render obvious Applicants' claims 6 - 10, 12 - 17, 27 – 29, and 31 - 32. Accordingly, the rejection of claims 6 - 10, 12 - 17, 27 – 29, and 31 - 32 should be withdrawn for at least these additional reasons.

**CONCLUSION**

In summary, Applicants' claims 1, 4 - 10, 12 - 21, 27 – 29, and 31 - 33 are allowable over the cited art of record and the present application is in condition for allowance. Accordingly, a Notice of Allowance is respectfully solicited. Should the Examiner have any comments regarding the Applicants' response, Applicants request that the Examiner telephone Applicants' undersigned attorney.

Respectfully submitted,

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